Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES H. TROISI

Appeal No. 1999-0855
Application No. 08/730,468

ON BRIEF

Before RUGGIERO, LALL, and DIXON, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 17-23, which are the only remaining claims in the present application. Claims 1-16 have been canceled.

The claimed invention relates to the sorting and storing of data using a sort tree in a computer system. More particularly, the sort tree is dynamically reconfigured as it

is created while data record identifiers are read into the system. Appellant asserts at page 6 of the specification that, by combining the initialization and building of the sort tree in accordance with the number of data records, a sort tree is created that is only large enough to hold the data records entered, thereby reducing the amount of occupied memory space.

Claim 17 is illustrative of the invention and reads as follows:

> 17. A method of sorting and storing data in a computer system, the computer system including a Central Processor Unit (CPU), nonvolatile memory accessible by the CPU, and working memory associated with the CPU, the nonvolatile memory including a plurality of data records stored therein, comprising the steps of:
>
> reading said data records from said nonvolatile memory and storing them in said volatile working memory;
>
> assigning a unique data record identifier to each data record in said volatile memory;
>
> creating a sort tree in said volatile memory, said sort tree including a plurality of nodes allocated to locations in said volatile memory, said nodes including a plurality of exterior nodes, a plurality of interior nodes, and a root node;
>
> initializing said sort tree in combination with entry of said data record identifiers into said sort tree so as to add nodes to the sort tree in accordance with a number of data records added, so that the sort tree is

initialized to the extent that it is only large enough to hold the data records entered;

sorting said data record identifiers by comparing said data record identifiers throughout said sort tree to said root node; and

reading said data records from said volatile memory and storing them in said nonvolatile memory in the order of said sorted record identifiers.

The Examiner relies on the following prior art reference:[1]

Amsbury, "A Balanced Static BST," Data Structures From Arrays to Priority Queues, pp. 456-59 (Wadsworth, Inc., 1985).

Claims 17-23 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over the admitted prior art (hereinafter APA) in view of Amsbury.

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the Briefs[2] and Answer for the respective details.

OPINION

We have carefully considered the subject matter on appeal,

the rejection advanced by the Examiner, the arguments in support of the rejection, and the evidence of obviousness

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[1] In addition, the Examiner relies on the admitted prior art at pages 1-5 of Appellant's specification.

[2] The Appeal Brief was filed May 4, 1998 (Paper No. 10). In response to the Examiner's Answer dated May 19, 1998 (Paper No. 11), a Reply Brief was filed July 23, 1998 (Paper No. 12), which was acknowledged and entered by the Examiner without further comment as indicated in the communication dated July 30, 1998 (Paper No. 13).

relied upon by the Examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellant's arguments set forth in the Briefs along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the invention set forth in claims 17-23. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837
F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1,
17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led

to
modify the prior art or to combine prior art references to arrive
at the claimed invention. Such reason must stem from some teaching, suggestion, or implication in the prior art as a whole
or knowledge generally available to one having ordinary skill in
the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825
(1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.,
776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part
of complying with the burden of presenting a prima facie case of
obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24

USPQ2d

1443, 1444 (Fed. Cir. 1992).

With respect to independent claims 17 and 21, the Examiner, as the basis for the obviousness rejection, proposes to modify the disclosure of APA. According to the Examiner, APA discloses the claimed invention except for the feature of building the sort tree only large enough to hold the data records entered (page 3 of the Office action mailed February 28, 1997, Paper No. 4). To address this deficiency, the Examiner turns to the Amsbury reference, which describes a balancing technique for a static BST (binary sort tree), and asserts the obviousness to the skilled artisan of constructing a tournament tree of the required size

" . . . because otherwise the unused nodes waste volatile memory space." (Id.).

After reviewing Appellant's arguments in response, we are in general agreement with Appellant that the Examiner has not established a prima facie case of obviousness since proper motivation for making the proposed combination has not been established. In our view, the Amsbury reference provides nothing more than a suggestion to balance sort trees to ensure

that

" . . . [t]here is never more than one unattached subtree per level. (Amsbury, page 457). The Examiner has provided no indication as to how and where the skilled artisan might have found it obvious to apply the teachings of Amsbury to modify APA to arrive at the particular sorting procedure of the claimed invention. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992).

We are in further agreement with Appellant (Brief, page 8) that, even assuming arguendo that proper motivation exists for combining APA with Amsbury, the proposed combination would not result in the invention as claimed. Each of the appealed independent claims 17 and 21 require the initialization of a sort tree in combination with the entry of data record identifiers into the sort tree, a feature which eliminates the need to know the number of records before building a sort tree. We agree with Appellant that Amsbury, in contrast, at

most suggests only the determination of the number of data records to then decide how large the sort tree should be. There is no indication on the record by the Examiner as to how the proposed combination of APA and Amsbury would meet the specifics of the language of the claims on appeal. In order for us to sustain the Examiner's rejection under 35 U.S.C. § 103, we would need to resort to speculation or unfounded assumptions or rationales to supply deficiencies in the factual basis of the rejection before us.

In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968), reh'g denied, 390 U.S. 1000 (1968).

In conclusion, since the Examiner has not established a prima facie case of obviousness, the 35 U.S.C. § 103 rejection of independent claims 17 and 21, and claims 18-20, 22, and 23 dependent thereon, is not sustained. Therefore, the decision of the Examiner rejecting claims 17-23 is reversed.

REVERSED

JOSEPH F. RUGGIERO Administrative Patent Judge	)	
PARSHOTAM S. LALL Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH L. DIXON Administrative Patent Judge	)	

JFR:hh

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LAWRENCE W. GRANATELLI
FENWICK & WEST, LLP
TWO PALO ALTO SQUARE
PALO ALTO, CA 94306